

## Caledonia, City Of Summary of Water Conservation Report

Additional Details at [www.espwater.org](http://www.espwater.org)

2019 Report based on 2018 Water Use

<b>Water Conservation Goals</b>	
Unaccounted Water Loss	11.3 %
Residential GPCD	41
Annual % Reduction-Nonresidential	8.01
Trend in total per capita demand	«TrendInPerCapitaDemand»
Total Peaking Factor	2.01
<b>Water Accounting</b>	
Total water to Treatment	84,153,000 gallons
Total water to Distribution	84,153,000 gallons
# of Residential connections	1,128
# of Non-Res. connections	178
Residential vs. Non-Res. Use	43.0 million gal. vs. 31.6 million gal.
Date of Highest Use	5/17/2018
<b>Water Conservation - Direct</b>	
Water Supply System Infrastructure Efficiency (leaks, meters, etc.)	None listed
Date of last Audit/Percent done	% audit
Direct Conservation Single Family (SF) and Multi-Family (MF) and Commercial, Industrial, Institutional (CII) Efforts	None listed
Reuse or other Customer conservation projects	None listed
<b>Water Conservation Indirect</b>	
Ordinances	<ul style="list-style-type: none"> <li>• Critical/Emergency Water Deficiency Ordinance</li> <li>• Private well ordinance (private wells in a city must comply with water restrictions)</li> </ul>
Education and Outreach	None listed
Collaboration	<ul style="list-style-type: none"> <li>• Collaborated with MDH on wellhead protection project</li> </ul>
Rate structure	<ul style="list-style-type: none"> <li>• Other</li> </ul>

## General Comments and Recommendations for additional conservation efforts:

1. **WATER CONSERVATION GOALS:** Compare your water supply system results to the statewide water conservation goals that are set in the Water Supply Plans:

a. UNACCOUNTED FOR WATER LOSS	<10%
b. RESIDENTIAL GALLONS PER CAPITA DEMAND (GPCD) DAILY	<75
c. ANNUAL % REDUCTION IN NONRESIDENTIAL USE	>1.5%
d. TREND IN TOTAL PER CAPITA DEMAND	>=1.0
e. TOTAL PEAKING FACTOR	<2.6

Each water supplier should try to achieve the statewide water conservation goals by the time their next Water Supply Plan is due (2026-2028).

2. **WATER LOSS:** For most water suppliers, working on reducing water loss should be your top conservation objective. Cities should first make their own water supply system as efficient as possible. In addition to leaks, water can be “lost” through unauthorized consumption (theft), administrative errors, data handling errors, and metering inaccuracies or failure.
3. **LEAK REPAIR:** Budgeting for and keeping on top of aging pipes and infrastructure will be important in the coming years to reduce water loss. Also check fire hydrants frequently, many cities are finding these to be part of their water loss problem.
4. **METERS:** A water meter program should include selection, installation, testing and maintenance. Over time meters lose accuracy and inaccurate meters contribute to loss of revenue. Accurate meters are also key to getting a handle on water loss. Focus first on large meter installations.
5. **AUDIT:** Water audits are the first step for controlling water loss. AWWA offers free [Water Audit Software](#). The second step is intervention and implementing solutions, and the third step is evaluation and further improvements if needed. Metering and better water accounting are key to improving the city’s water loss percentage.
6. **PEAK WATER DAY:** Generally this number indicates if the city has high summer water use. Conservation education should focus on improving landscape irrigation efficiency on public and private property. The [UMN Turfgrass Science](#) website has excellent irrigation resources. If your peak water day was for hydrant flushing, you might evaluate if this amount could be reduced without sacrificing best practices. Some cities are significantly cutting back with hydrant flushing and not impacting water quality.
7. **RESIDENTIAL & NON-RESIDENTIAL:** Compare the volume of Residential and non-residential water user. Is one significantly more than the other or are they quite close in water use? Focusing on your big water use accounts with education programs or conservation partnerships may make sense.
8. **NON-RESIDENTIAL EDUCATION AND OUTREACH IDEAS:**
  - a. Non-residential use is always an opportunity for water conservation – economically Commercial, Industrial and Institutional users *want* to be as efficient as possible. The city should look at the 2-3 largest non-residential water users and meet with them to see if there are things they can do to conserve water.
  - b. Cities often work with the CII categories that are easiest to implement: government/municipal buildings and facilities; large landscape areas; schools and/or colleges; office buildings; restaurants. Research shows that the degree of success for water conservation are: 1. Schools/colleges, 2. Commercial and apartments, 3. Large

landscape areas, 4. Lodging, 5. Public pools/water parks. Target your efforts here for optimal success.

- c. If any of the CII facilities have outdoor lawn irrigation this is an easy and quick way to reduce water use by installing smart meters, doing an irrigation audit to look for leaks and broken heads, or simply turning off the irrigation controllers and only turning them on when there has been a lack of rainfall.

**9. RESIDENTIAL EDUCATION AND OUTREACH IDEAS:**

- a. The city may want to offer free toilet leak detection tablets to customers since this is the most common leak and easy to fix. Contact the MN DNR Information Center for a free supply of toilet leak detection info cards and dye tablets.
- b. You may want to try promoting this home water conservation app that only takes a few minutes and is fun and informative <http://nrwa.aqkwa.com> (try it yourself!). In addition to adults, you can work with the schools, kids may influence their parents to conserve water.
- c. Other new water campaigns the city may want to participate in include: the US EPA WaterSense Program. Membership is free and allows you access to great resources. Also *Value of Water*- US Water Alliance has a Value of Water Campaign <http://uswateralliance.org/initiatives/value-of-water> with a toolkit that has PDFs of ads, billboards, bill stuffers, bus shelter ads, banners, and social media. The focus is positive, emphasizing that water is essential.

**10. ORDINANCES:** City Councils may want to strengthen their water conservation ordinances. League of MN Cities is a great source for sample ordinances.

**11. RATE STRUCTURE:** Cities should regularly evaluate the water rate structure. MN Rural Water Association provides this service (free for a quick review; small fee for a full bookkeeping audit).

**12. FUTURE WEATHER:** Northern cities are already experiencing changing seasons and weather patterns. Some of these will impact water supply and demand. Climate science tells us three key trends will likely continue through mid-century:

- 1. Extreme rainfall is happening more often.
- 2. Minnesota's climate is becoming warmer and wetter.
- 3. Winter is warming 13 times faster than summer and there are fewer days of extreme cold.

These changes will likely impact public water supplies in several ways:

- a. **Rivers & Streams:** Rivers will see altered high and low flows and an increase in contamination due to flooding. Whatever the historic flood level has been in the past, anticipate it to be higher. Are water treatment facilities, water towers, and pumps flood proof/resilient? Are there industries upstream that may contaminate drinking water supplies during a flood? Are communications in place to notify the city of possible contamination and emergency flood preparations in place? If the city is not a member of MnWARN they may want to consider this voluntary option. Warmer winters may mean more ice, which often requires more salt treatment. Chloride contamination is becoming a concern in many areas of the state and may require additional water treatment.
- b. **Lakes:** Longer thermal stratification on lakes means that seasonal mixing may be eliminated in shallow water, resulting in fish kills. This may not affect the city directly. Thin ice may pose safety hazards to citizens and staff.

- c. Possible City Infrastructure Impact: direct damage from heavy rain, increased mold/moisture damage, safety and accessibility on ice or trails, damage to culverts and bridges.
- d. Invasive species have new advantages. Are zebra mussels a threat at your water or wastewater treatment facilities? If not, they may be in the future. Forest insect pests may migrate further north killing vast forested areas and increasing fire hazards.
- e. Warmer winter temperatures: The good news is this may mean fewer frozen water lines.
- f. Forests: Boreal species will face increasing hydrothermal stress. The heat stress is more than trees can tolerate and forest communities will change across the landscape and higher temperatures means more drying of vegetation. If geographically appropriate, is the water system prepared for a possible increase in forest fires?